



**TEXAS WATER COMMISSION**  
**Stephen F. Austin State Office Building**  
**Austin, Texas**

PERMIT NO. UR02827

KINGSVILLE DOME MINING PROJECT  
This permit supersedes and replaces  
TWC Permit No. UR02827 issued  
December 30, 1986

PERMIT to conduct underground  
injection under provisions of  
Chapters 26 & 27, Texas Water Code

I. Name of Permittee:

A. Name URI, Inc.

B. Address 12377 Merit Drive, Suite 750, LB14  
Dallas, Texas 75251

II. Type of Permit: Regular \_\_\_\_\_ Amended X

III. Nature of Business: In Situ Uranium Mining

IV. General Description and Location of Injection Activity

The permit area for this site is 2135 acres. There are ten currently designated mine areas. The production zone is in the Goliad Formation at the depth interval of 420 to 810 feet below mean sea level. Uranium will be produced from three sand units in the upper Goliad, each unit approximately 50 feet thick. Continuous excess water withdrawal will provide control of leachate movement. Monitor wells will provide horizontal and vertical surveillance of ground-water quality to ensure confinement of leachate in the subsurface mining zone.

CONTINUED on Pages 2 through 13.

The permittee is authorized to conduct injection activity in accordance with limitations, requirements, and other conditions set forth herein. This permit is granted subject to the rules and orders of the Commission, and the laws of the State of Texas. This permit is valid until amended or revoked by the Commission.

APPROVED, ISSUED, AND EFFECTIVE this 11th day of January, 1990

ATTEST:

Brenda W. Foster

[Signature]

For the Commission

The mining procedure consists of injection of an alkaline leaching solution along with an oxidant into the uranium bearing formation through a pattern of injection wells. The uranium is solubilized by the leaching solution and the solution is pumped from a pattern of recovery wells to the processing plant where uranium is extracted by ion exchange. This solution is then reconstituted with leaching agents and recycled to the field for reinjection.

URI, Inc. shall use a non-ammonia leaching solution at all Production Areas. Before there is any modification in the composition of the leaching fluids beyond the description in the application, the operator shall provide descriptive information and obtain an amendment pursuant to the Rules of the Commission.

The mining operation is located approximately 8 miles southeast of Kingsville adjacent to FM 1118 in Kleburg County, Texas. The permit area is contained within Blocks 41, 42, 48, 49, 50, 51, 53, 54, and 55.

No surface discharge is authorized by this permit.

#### V. Character of Wastes

Waste streams resulting from the mining activity include:

- A. Production Bleed Stream - This stream will result from a withdrawal of fluids from the well field for leachate control.
- B. Plant Waste Stream - This stream results from waste fluids generated from the normal operations of plant facilities.
- C. Laboratory Stream - This waste stream is generated by routine chemical laboratory procedures and processes.
- D. Restoration Stream - This stream will result from ground water pumped from the well field during the restoration of the mine areas.
- E. Radioactive Solids - Any radioactive solid and semi-solid wastes will be transported and disposed of pursuant to the Texas Department of Health requirements.
- F. Non-Radioactive Solids - Non-radioactive solid and semi-solid wastes will be disposed of at an authorized waste disposal site in accordance with the Texas Water Commission rules.

VI. Standard Provisions

A. Commission Rules

This permit is subject to all rules of the Commission under the authority of Section 5.103, Texas Water Code. The following rules are incorporated herein by reference:

<u>31 TAC Section</u>	<u>Title</u>
331.1 - 331.13	General Provisions
331.31 - 331.36	Jurisdiction Over In Situ Uranium Mining
331.41 - 331.48	General Standards and Methods
331.81 - 331.86	Standards For Class III Wells
331.101 - 331.107	Standards For Class III Wells Production Area Development
331.122	Considerations Prior To Permit Issuance (Class III Wells)

B. Production Area Authorization

1. General - Mining in a Production Area within the Permit Area requires a Production Area Authorization from the Texas Water Commission. The Production Area Authorization includes the updated Mine Plan, a Restoration Table, Baseline Water Quality Table, Control Parameter Upper Limits, Monitor Well locations for the subject Mine Area, and special provisions (if applicable). These, as well as the application and any subsequent technical reports, are a part of and incorporated herein as terms and provisions of this permit.

The authorization for mining in a Production Area may be issued only after an original Application for Production Area Authorization and three (3) complete copies are submitted to the Executive Director. The Executive Director shall transmit the application with his recommendation to the Texas Water Commission which shall consider the application and recommendation at its regular agenda meeting after at least ten (10) days notice to all affected parties. The notice and Commission consideration of the application shall be limited to the issues pertinent to the requested Production Area Authorization as set out in this permit.

2. Information Required - The permittee will develop and submit the information required in the "Application for Production Area Authorization" - Form TWC-0304.

C. Sample Taking, Preservation, Analysis and Quality Control

1. Sampling - To obtain a valid sample, the sample well shall be pumped

during completion until water is free of mud and foreign material and until conductivity and pH are reasonably constant in a natural range. As samples are taken during Baseline, routine, and restoration sampling, the sampled well shall be pumped for a sufficient time to assure that water sampled is formation water. Excess water pumped from production wells or monitor wells containing leaching solutions shall not be discharged to the surface waters of the State.

2. Preservation and Analysis - Sample preservation, analysis and analytical quality control will be as defined in the current issues of Methods for Chemical Analysis of Water and Wastes (EPA - Technology Transfer). Total Dissolved Solids shall be determined by evaporation (180°C).
3. The permittee shall notify the Central Office in Austin of intent to collect samples for Baseline and final closing at least one week prior to sample collection to allow the Commission staff an opportunity to split samples for confirming analysis.

D. Wellhead Pressure

Pressure gauges shall be on all injection wells or on the injection manifold with the maximum allowable injection pressure clearly marked on each gauge. The wellhead pressure at any injection well shall be maintained so as to minimize the possibility of leakage from the Production Zone into the Non-Production Zones. In no instance will the injection pressure exceed .40 psi per foot of well depth.

E. Radioactive Materials License

Prior to mining in a Production Area the permittee shall have a valid license(s) from the Texas Department of Health covering the handling and processing of radioactive materials.

VII. Special Provisions

A. Control Parameters and Upper Limits

Conductivity, uranium and chloride shall be used as control parameters. Upper limit values will be calculated for the Production and Non-Production Zones as follows:

1. Add a value of 5 mg/l to the maximum uranium value determined on the Baseline sampling of the Mine Area Wells and the Production Area Wells of the Production Area being authorized.

2. Add 25% to the maximum conductivity value determined in the Baseline sampling of the Mine Area Wells and the Production Area Wells of the Production Area being authorized.
3. Add 25% to the maximum chloride value determined in the Baseline sampling of the Mine Area Wells and the Production Area Wells of the Production Area being authorized.

B. Plugging and Abandonment

Prior to abandoning Class III uranium wells, the wells shall be plugged with cement in a manner which will not allow the movement of fluids out of the injection zone either into or between freshwater aquifers.

The permittee shall notify the Executive Director before commencing plugging and abandonment. Plugging and abandonment shall be accomplished in accordance with the plans and specifications submitted in the application. Within 30 days after completion of plugging, the permittee shall file with the Executive Director a plugging report on forms provided by the Commission. Any revised, updated or additional plugging and abandonment plans shall be subject to Executive Director approval.

C. Financial Assurance

The permittee shall secure and maintain in full force and effect at all times a performance bond or other form of financial security, in accordance with 31 TAC 305.153 to provide for plugging and abandonment of the permitted Class III uranium wells. The bond or other form of financial security shall be in the amount of \$230,365.00 and shall be reviewed annually. The amount of financial security may, at the discretion of the Texas Water Commission in a separate and independent proceeding, be altered at a future date to provide for adequate plugging subject to prevailing general economic conditions. This permit does not authorize underground injection of fluid unless the permittee has in effect the performance bond or other form of financial security described above.

D. Wastewater Ponds

1. All wastewater ponds except those described in VII.D.3. below shall be lined with a minimum 30 mil thick chlorinated polyethylene liner or equivalent approved lining, and constructed with an underdrain leak detection system in accordance with the plans and specifications contained in the Permit Application. The leak detection system shall be monitored weekly. A minimum of two feet of freeboard shall be maintained in all ponds during normal operations. A minimum of one foot of freeboard may be maintained during emergency periods such as high rainfall, for a period not to

exceed fourteen days. An easily readable freeboard gauge shall be installed and maintained for each pond. The Central Office in Austin shall be notified immediately when the freeboard decreases to less than two feet.

2. If any leaks are detected in the pond liner, the Central Office in Austin shall be notified immediately. The pond fluids will be evacuated as soon as practicable to another location approved by the Director of the Water Rights and Uses Division and the leak repaired. A determination of the extent of any subsurface contamination shall be made and a report submitted to the Executive Director within 14 days after the leak is detected. The report shall also contain the company's plan for corrective action.
3. All ponds used for wastewater storage prior to injection down a waste disposal well shall be subject to the terms and conditions of the disposal well permit.

E. Mechanical Integrity

Proof of mechanical integrity for all injection wells shall be demonstrated by well completion (cementing) records and a pressure test as described in the application. Prior to beginning injection the permittee must receive certification from the Executive Director that well construction is in accordance with the plans and specifications contained in the permit application and technical report.

F. Production/Processing Facilities

The primary and supporting production/processing facilities along with supplies and materials used by or resulting from these facilities are to be installed, operated, maintained and handled in accordance with the plans, specifications, and descriptions submitted as part of the permit application in order to prevent dispersion of any materials, directly or indirectly, to surface or ground waters.

No surface discharge is authorized by this permit from any production or processing facilities.

G. Designated Non-Production Zone Wells in Additional Overlying Aquifers

1. Non-Production Zone Monitor Wells completed in additional overlying aquifers (above the first overlying aquifer) shall be sampled and Baseline water quality determined upon completion. Baseline water quality analyses (on Form TWC-0678) shall be submitted to the Central Office in Austin. Every three months, these Monitor Wells shall be sampled and analyzed for the Control Parameters specified in Section VII.A. The results of these quarterly sample analyses

shall be submitted to the Central Office in Austin on March 1st, June 1st, September 1st, and December 1st of each year.

2. If the results of a routine sample analysis in one or more of these overlying Monitor Wells shows that the value of any Control Parameter is equal to or above the Upper Limit established for that permit/mine area the operator shall complete a Verifying Analysis of samples taken for each apparently affected well within two days. The permittee shall determine if and to what extent leaching solutions are present in the overlying aquifers and effect clean-up in accordance with 31 TAC Section 331.106. Under such circumstances corrective action reports shall be submitted monthly to the Director of the Water Rights and Uses Division, in Austin.

#### H. Monitoring Frequency During Restoration

Once the permittee officially notifies the Central Office in Austin that full-scale restoration has commenced and injection of leachate has ceased in a particular Production Area as per 31 TAC Section 331.105(2), approval may be given by the Executive Director for a reduction in the frequency of monitoring. The restoration monitoring frequency shall be at least quarterly. The reduced frequency of monitoring may continue as long as full-scale restoration continues or until the value of any Control Parameter is equal to or above the Upper Limit Value for the Production Area. If full-scale restoration efforts by the permittee are suspended or interrupted for any reason, the permittee shall notify the Central Office in Austin and routine monitoring as per 31 TAC Section 331.105(1) shall be resumed. The permittee shall submit any proposed monitoring frequency changes to the Executive Director at least 30 days prior to the proposed implementation date of the new sampling schedule.

#### I. Reduced Sampled Analyses During the Restoration Stability Period

Restoration stability sample analyses, as required by 31 TAC Section 331.107, may be reduced in frequency for particular parameters if the permittee can demonstrate to the Executive Director that the particular parameter concentrations have not been elevated above Baseline during the mining process. These parameters (as designated by the Executive Director) shall be analyzed during the initial restoration verification sampling and the final restoration verification sampling and the final restoration sampling only. All other Restoration Parameters shall be analyzed and reported for each of the required monthly interval samplings.

- J. Restoration Demonstration - The permittee shall complete one or more restoration demonstrations before October 12, 1989. The demonstration shall include the following:

1. An isolated restoration demonstration pattern, completed in a Production Area, constructed to the same basic configuration as the proposed production well field pattern, and operated under the same conditions as the proposed mining procedures.
  2. Leaching of the pattern will be run for at least 3 months under commercial activity conditions using leaching agent concentrations equal or greater than is expected to be required for production.
  3. After leaching phase, a complete chemical description of the produced fluid will be obtained and a demonstration of a restoration will be initiated.
  4. Brine concentrate will be discharged to a disposal well or contained in on-site tankage until it can be disposed of at an authorized site.
  5. Sample analysis of fluids will be completed at least every week during the restoration demonstration to allow observation of the concentration of various restoration parameters. The permittee shall compile reports based on the weekly sampling. These progress reports shall be submitted to the Director, Water Rights and Uses Division of the Texas Water Commission biannually.
  6. Restoration will continue until the ground water is restored to levels consistent with baseline.
  7. With each progress report, the operator will calculate and submit the volume of ground water affected. Factors to be considered include: areal extent, formation thickness, and porosity. Upon the consideration of the restoration demonstration, submit the data, analysis, and conclusions in a final report.
  8. Authorization for expansion of mining into additional Production Areas will be contingent upon the results of the restoration demonstration within the 18 month period.
- K. During the full-scale restoration at this site, the permittee shall use reverse osmosis (R.O.) treatment of ground water from the mine zone aquifer in accordance with the plans outlined in the technical report submitted as part of the application.
- L. Waste water produced from the reject side of the R. O. unit, less that amount of water constituting the bleed streams, shall be replaced by an equal amount of makeup water purchased for that purpose. Prior to the purchased water being injected into the mine zone, it will be commingled with the R.O. product and mine zone water.



- M. Waste streams and reject restoration fluids will be disposed of down a Commission approved Class I waste disposal well. All terms and conditions of the waste disposal well permit will be complied with.
- N. Monitor wells shall be installed in the first aquifer underlying the production zone. These wells shall be sampled and analyzed and the results shall be reported according to the same schedule established for the monitor wells in the first overlying aquifer. The first underlying aquifer shall be determined as follows:
1. A hydrologic test shall be conducted in each production area to determine if the "A" sand is in communication with the "B" or "C" sands.
    - (a) If the "A" sand is not in communication with the "B" or "C" sands it shall be considered to be the first underlying aquifer and shall be monitored in accordance with 31 TAC Section 331.103(b).
    - (b) If the "A" sand is in communication with the "B" or "C" sands it shall be monitored in accordance with 31 TAC Section 331.103(a). In this case the "AA" sand shall be considered to be the first underlying aquifer and shall be monitored in accordance with 31 TAC Section 331.103(b).
- O. The permittee shall use the same averaging process for restoration samples as is used to establish baseline water quality values so that constituent levels are directly comparable.
- P. Any modification to a Restoration Table in a Production Area Authorization which would exceed the high values contained in the Restoration Range Table, which is set out in Table 2 of this permit, ~~shall require published notice and opportunity for a public hearing in~~ accordance with 31 TAC Section 305.102.

#### VIII. Specific Definitions

- A. Permit Area - The Permit Area is defined as shown in Figures 1 and 2.
- B. Mine Plan - The Mine Plan is defined by Figure 2 Table 1. An updated Mine Plan will be issued as part of each future Production Area Authorization or Permit amendment.
- C. Application - The document entitled "Kingsville Dome Project, Expansion No. 1, Supplementary Technical Report," filed by URI, Inc. as received on May 13, 1988 and subsequent amendments thereof.

Figure 1

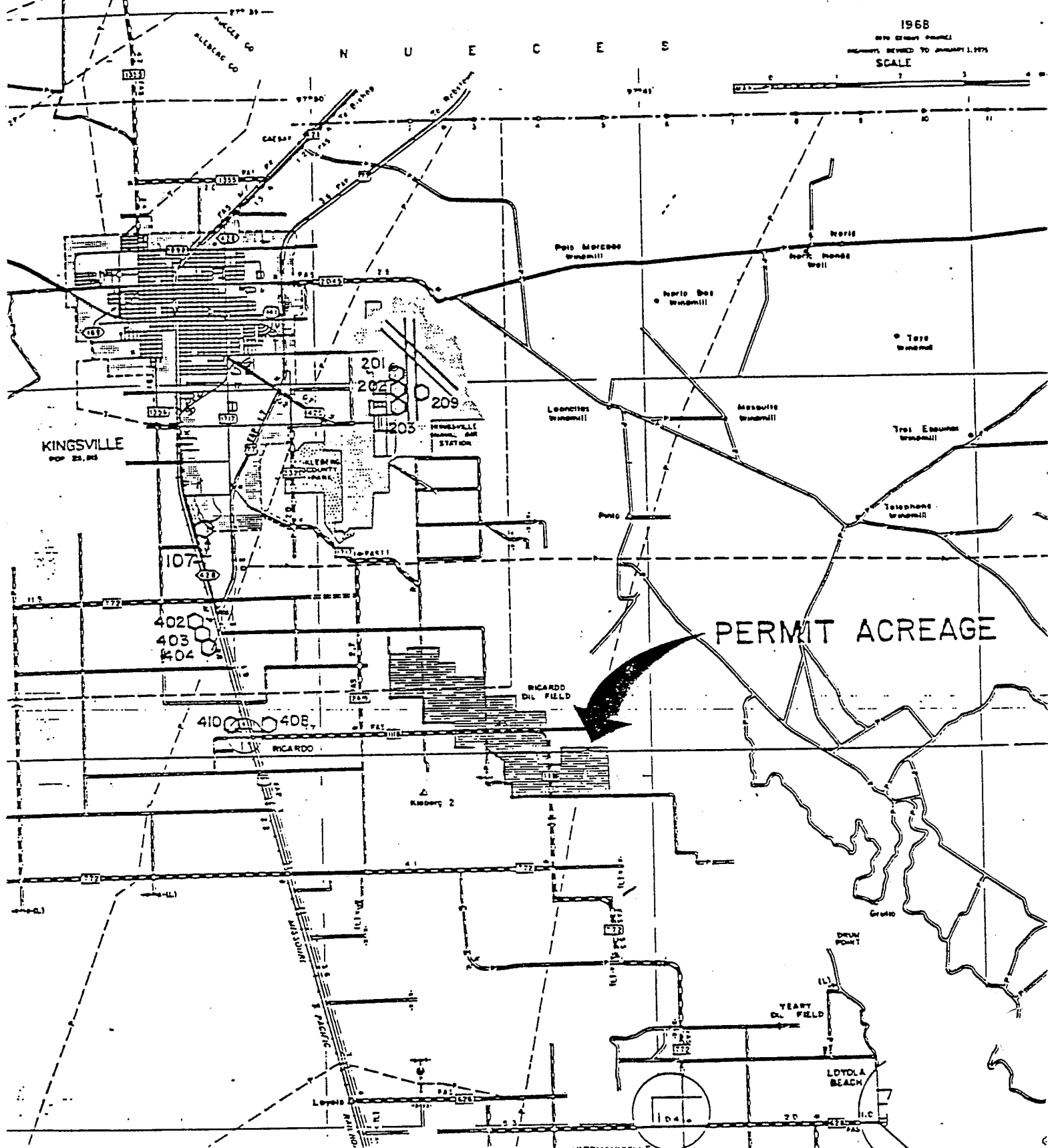
BASE FROM  
GENERAL HIGHWAY MAP  
KLEBERG COUNTY  
TEXAS

REPRODUCED BY THE  
TEXAS STATE HIGHWAY DEPARTMENT  
PLANNING AND RESEARCH DIV.  
IN COOPERATION WITH THE  
U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION

KINGSVILLE DOME PROJECT  
PERMIT AREA LOCATION  
(With Major Regional Water Wells)

1968

WITH COUNTY CHANGES  
HIGHWAYS REVISED TO JANUARY 1, 1975  
SCALE



# URANIUM RESOURCES, INC.

## KINGSVILLE DOME

### MINE PLAN

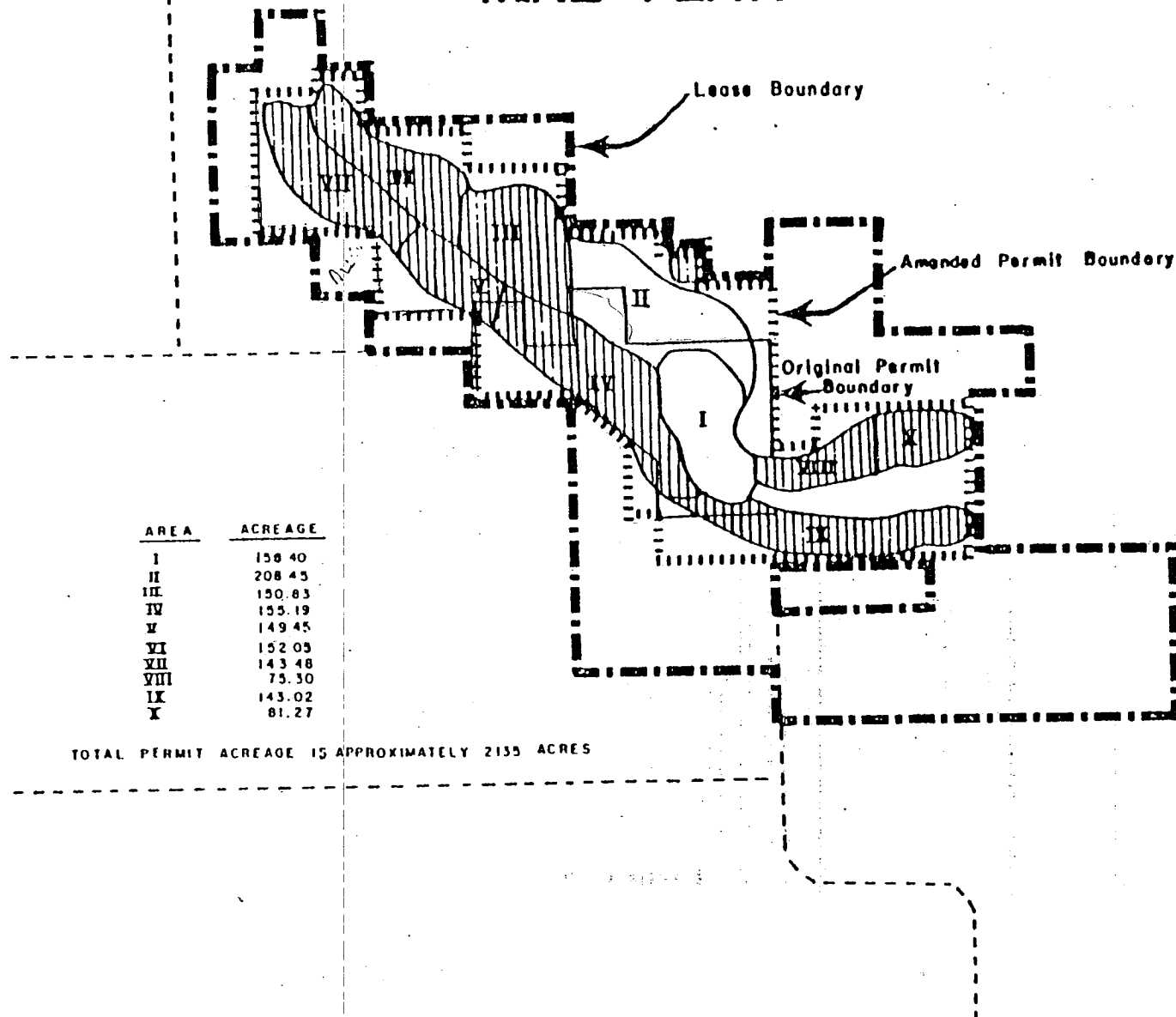


Figure 2

Table 1  
 Mine Plan

PAA #	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
I													
II													
III													
IV													
V													
VI													
VII													
VIII													
IX													
X													

PRODUCE

RESTORE

Table 2  
 RESTORATION RANGE TABLE

	<u>LOW</u>	<u>HIGH</u>
Ca	5.15	74
Mg	2.8	10
Na	288	352
K	4.72	12.1
CO <sub>3</sub>	0	71
HCO <sub>3</sub>	142	505
SO <sub>4</sub>	13	310
Cl	196	352
Fl	.49	1.10
N	.01	5.8
SiO <sub>2</sub>	9.1	22
pH*2	7.37	9.5
TDS	880	1230
EC**	1470	2100
Alk***	205	444
As	<.001	.023
Cd	<.0001	.0034
Fe	<.01	.26
Pb	<.001	.014
Mn	<.001	.08
Hg	<.0001	.01
Se	<.001	.072
NH <sub>3</sub>	.01	13
U	.002	1.89
Mo	<.01	.84
Ra 226****	.01	202

Parameter values are expressed in mg/l except where noted

- \* standard units
- \*\* umhos
- \*\*\* standard units
- \*\*\*\* pCi/l

